

Listing of Claims

1. (Amended) A method for forming a polymer comprising initiating a polymerization of tertiary alkene monomers and vinyl aromatic hydrocarbon monomers, said vinyl aromatic hydrocarbon monomers having substituents of the formula $R^1SiR^2R^3R^4$, wherein R^1 is ~~optional and is a hydrocarbon or ether linking~~ links the silicon and said vinyl aromatic and is selected from methylene group, divalent hydrocarbon group having more than 6 carbon atoms, or divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one carbon atom, and R^2 , R^3 , and R^4 are one or more of hydrogen, alkyl, and alkoxy, with the proviso that no more than two may be hydrogen or alkyl.
2. (Original) The method of claim 1 wherein said polymerization is initiated by a cationic initiator system.
3. (Original) The method of claim 1 wherein said tertiary alkene is one or more of isobutylene, 2-methylbutene, 2-methylpentene, and 2-methylhexene.
4. (Amended) The method of claim 1 wherein said R^1 is ~~present and comprises a C₁-C₈ alkyl group and may optionally include one or more of an ether group~~ a methylene group, a divalent hydrocarbon group having 7 carbon atoms, a divalent hydrocarbon group having 8 carbon atoms, or a C₁-C₈ divalent hydrocarbon group comprising one or more ether functional groups.
5. (Original) The method of claim 1 wherein said R^2 , R^3 , and R^4 are independently selected from one or more of hydrogen, C₁-C₁₀ alkyl groups, methoxy, ethoxy, propoxy, butoxy, pentoxy, and alkoxy groups with up to 10 carbons in the alkyl portion, with the proviso that no more than two be hydrogen or alkyl.
6. (Original) The method of claim 2 wherein said cationic initiator system comprises a Lewis acid and alkyl halide.

7. (Original) The method of claim 6 wherein said Lewis acid is selected from TiCl_4 , BCl_3 , AlCl_3 , Et_2AlCl , EtAlCl_2 , and mixtures thereof.
8. (Original) The method of claim 6 wherein said alkyl halide comprises one or more of α , α' , α'' tetramethyl-1,4-benzenedimethyl chloride, *t*-butyl chloride, *t*-butyl bromide, 2-chloro-2-methylpentane, 2-bromo-2-methylpentane, 2-chloro-2-methylbutane, 2-chloro-2-phenylpropane, 2-bromo-2-phenylpropane, 1,3-(2-chloro-2-propyl)-5-*t*-butyl benzene, 1,3-(2-bromo-2-propyl)-5-*t*-butyl benzene and 2-bromo-2-methylbutane.
9. (Amended) A method for forming a building sealant comprising:
initiating cationic polymerization of tertiary alkene monomer units and vinyl aromatic hydrocarbon monomer units, said vinyl aromatic hydrocarbon monomer units having substituents of the formula $\text{R}^1\text{SiR}^2\text{R}^3\text{R}^4$, wherein R^1 ~~is optional and is a hydrocarbon or ether linking~~ links the silicon and said vinyl aromatic and is selected from methylene group, divalent hydrocarbon group having more than 6 carbon atoms, or divalent hydrocarbon group comprising one or more ether functional groups provided that any ether oxygen and the silicon are connected via at least one carbon atom, and R^2 , R^3 , and R^4 are one or more of hydrogen, alkyl, and alkoxy, with the proviso that no more than two may be hydrogen or alkyl, to form a sealant polymer, and combining said sealant polymer with a hardener.
10. (Original) The method of claim 9 wherein said polymerization is cationic and includes a Lewis acid.
11. (Original) The method of claim 10 wherein said Lewis acid comprises TiCl_4 , BCl_3 , AlCl_3 , Et_2AlCl , EtAlCl_2 , and mixtures thereof.
12. (Amended) The method of claim 9 wherein said R^1 ~~is present and comprises a C1-C8 alkyl group and may optionally include one or more of an ether group~~ a methylene group, a divalent hydrocarbon group having 7 carbon atoms, a divalent hydrocarbon group

having 8 carbon atoms, or a C₁-C₈ divalent hydrocarbon group comprising one or more ether functional groups.

13. (Original) The method of claim 9 wherein said R², R³, and R⁴ are independently selected from one or more of hydrogen, C₁-C₁₀ alkyl groups, methoxy, ethoxy, propoxy, butoxy, pentoxy, and alkoxy groups with up to 10 carbons in the alkyl portion, with the proviso that no more than two be hydrogen or alkyl.
14. (Original) The method of claim 9 wherein said hardener comprises a tin or amine containing compound.
15. (Cancelled)
16. (Cancelled)
17. (Cancelled)
18. (Cancelled)
19. (Cancelled)
20. (New) A method for forming a polymer comprising initiating a polymerization of tertiary alkene monomers and vinyl aromatic hydrocarbon monomers, said vinyl aromatic hydrocarbon monomers having substituents of the formula SiR²R³R⁴, wherein the silicon is directly bonded to said vinyl aromatic and R², R³, and R⁴ are one or more of hydrogen, alkyl, and alkoxy, with the proviso that no more than two may be hydrogen or alkyl.